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# Marine Physical Laboratory

## ICESHELF Experiment Support and Data Analysis

W. Hodgkiss

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Final Report

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University of California, San Diego  
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## Final Report

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### *Abstract*

The objective of this project was to provide NRaD engineering support for ICESHELF'95 and to carry out analysis of the ICESHELF'94 engineering sensor and hydrophone data.

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### *Research Summary*

The Marine Physical Laboratory (MPL) has been involved in providing engineering support and data analysis for several NRaD ICESHELF sea tests. These sea tests have involved the testing of various slack line array subsystems including both hydrophone and engineering sensors, telemetry nodes, and deployment options for the array cable.

Under this delivery order, MPL provided NRaD engineering support for ICESHELF'95. Included was the mechanical design, fabrication, and testing of hardware needed for the safe deployment of telemetry node and array hardware during the sea test. MPL personnel also participated in the ICESHELF'95 sea test which was conducted 5-27 April 1995.

In addition to engineering support for ICESHELF'95, MPL provided analysis of selected segments of engineering sensor and hydrophone data

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## References

collected by the 20-element, 600 m, vertical line array during ICESHELF'94. One component of this effort was analysis of the acoustic array element localization (AEL) data. Three high-frequency, AEL receivers distributed along the vertical array received pings from four controller/transponders deployed in opposing pairs ~450 m horizontally from the array and ~20 below the ice-water interface. The results from this analysis are contained in [1]. The other component of this effort was analysis of selected segments of engineering sensor and hydrophone data collected by the vertical array. Of specific interest was a basic assessment of data quality (e.g. investigating the presence of system self-noise, channel-to-channel cross-talk, and time-varying channel gains). The results from this analysis are contained in [2].

## *References*

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- [1] D.E. Ensberg, "Array element localization (AEL) for acoustic arrays deployed during the ICESHELF 1994," MPL TM-444, Marine Physical Laboratory, Scripps Institution of Oceanography, La Jolla, CA (1995)
- [2] J-Y. Chang, "ICESHELF'94 engineering sensor and hydrophone data quality assessment," MPL-U-118/95, Marine Physical Laboratory, Scripps Institution of Oceanography, La Jolla, CA (1995).

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